JUL 1 3 2007
PATENT & TRADEMARK OFFICE

Attorney Docket No. TAN-331
PATENT

IN THE UNITED STATE PATENT AND TRADEMARK OFFICE

In re Application of:	)	Group Art Unit: 1712
	)	
SHINOHARA; HANABUSA;	)	Examiner: R. Sellers.
SAITO; NAKANISHI;	)	
Serial No. 10/755,447	)	
Filed: January 13, 2004	)	

For: **EPOXY RESIN, EPOXY RESIN COMPOSITION THEREOF AND CURED PRODUCT THEREOF**

DECLARATION UNDER RULE 132

Sir:

We, Shuya Shinohara, Masayoshi Hanabusa, Nobuhisa Saito and Hiroshi Nakanishi declare as follows:

1. We are same Shuya Shinohara, Masayoshi Hanabusa, Nobuhisa Saito and Hiroshi Nakanishi that are listed as co-inventors of the captioned application.

2. We are citizens of Japan with a residence in c/o Laboratory, Tohto Kasei Co., Ltd., Higashikasai 3-chome, Edogawa-ku, Tokyo, Japan.

3. We are thoroughly familiar with the subject matter of this application and with the Final Office Action mailed August 17, 2006, and all of the references cited therein.

4. We have conducted the following experiments to prove that the non crystalline epoxy resin of formula 2 of the present application is a different epoxy resin from the resin disclosed in Hartman's Patent (USP4,153,621) and in Kawano's Patent (USP7,063,914).

EXPERIMENTS

1) Object of the Experiment

We, inventors of U.S. Patent Application 10/755,447 submit this Experimental report for the purpose to prove that the non crystalline epoxy resin of formula 2 of the present application is a different epoxy resin from the resin disclosed in Hartman's Patent (USP4,153,621) and in Kawano's Patent (USP7,063,914).

Regarding the Hartman's Patent, we used the Epoxy resin prepared according to Example 1, and regarding the Kawano's Patent, we used YSLV-80XY of Example 2. And, melting point and latent heat quantity of these resins are measured by DSC (Differential Scanning Calorimetry) and are judgment whether each resin is crystalline or not crystalline is carried out. Molecular weight of these resins are measured by GPC (Gel Permeation Chromatography) and containing ratio of n=0 component is analyzed.

Further, for the purpose to prove that the epoxy resin of this invention is a non crystalline epoxy resin with glass transition point (Tg) and to prove containing ratio of n=0 component is 60% or less, measurement of Tg and GPC analysis are carried out on epoxy resins prepared according to Examples 1 and 2 of the present application. Measurement of Tg is carried out by DSC analysis.

In the meanwhile, in Example 5 in the original specification of the present application, it is clearly mentioned that non crystalline polyhydroxypolyether whose weight average molecular weight is 67000 is obtained. Therefore, average molecular weight of the present application indicates weight average molecular weight. For the purpose to make clear this point, measurement of weight average molecular weight of epoxy resins obtained according to Examples 1 and 2 of the present application are carried out using GPC.

2) Experiments

2)-1 Supplementary test of Example 1 of Hartman's Patent (USP4,153,621)

Epoxy resin A and epoxy resin B are obtained by chasing faithfully Example 1 of Hartman's Patent (USP4,153,621). That is, epoxy resin A corresponds to the epoxy resin of epoxy equivalent 190 obtained in the first

half of Example 1 of Hartman's Patent. And epoxy resin B corresponds to the epoxy resin of epoxy equivalent 272 obtained in the latter half of Example 1 of Hartman's Patent.

The epoxy resin A obtained by supplementary test is a crystalline resin of epoxy equivalent 192 and yield is 84%. The epoxy resin B is confirmed that it is a viscous liquid non crystalline epoxy resin and containing ratio of n=0 component is 62.2%. Further, higher components of n are non ring closure component (Retention Time=28.93min) and n=1 (27.92min). Results are shown in Table-1.

2)-2 Kawano's Patent (USP7,063,914)

DSC analysis and GPC analysis are carried out on crystalline epoxy resin YSLV-80XY (Lot.No.4 7M003, epoxy equivalent 191g/eq), which is same commodity as Example 2 in Kawano's Patent (USP7,063,914).

In the meanwhile, Nippon Steel Chemical Co., Ltd., was an original producer of YSLV-80XY, however, presently producing and dealing of YSLV-80XY is transferred to Tohto Kasei Co., Ltd., to which we declarants are belonging.

It is confirmed that YSLV-80XY (Lot.No.4 7M003), epoxy equivalent 191g/eq) is a crystalline resin of melting point 68.5℃, and latent heat quantity is 76.6mj/mg, further, containing ratio of n=0 component is 93.6%.

However, above mentioned results are slightly different from the data of YSLV-80XY disclosed in Reference Example 1 of the present application, that is, epoxy equivalent is 189g/eq and melting point 80℃. Difference of epoxy equivalent is within the range of variation in same product, however, difference of melting point is mainly caused by change of the factory for production along with the transference of production. But the fact that YSLV-80XY is crystalline epoxy resin is not changed. Results are also shown in Table-1.

Table-1

Results by supplementary tests of Hartman's Patent (USP4,153,621) and Kawano's Patent (USP7,063,914)

Analytical items		supplementary test of Example 1 of USP4,153,621		supplementary test of Example 2 of USP7,063,914
		epoxy resin A	epoxy resin B	YSLV-80XY (Lot.No.4 7M003)
Yield (%)		84	5	—
Epoxy equivalent (g/eq)		192	278	191
Softening point (℃)		—	—	82.4
DSC	M.P. *(℃) (endothermic peak temp.)	103.8 (Fig.1)	no (viscous liquid)	68.5 (Fig.2)
	latent heat quantity (mj/mg)	75.6 (Fig.1)	no (viscous liquid)	76.6 (Fig.2)
	Tg (℃)	no	no (viscous liquid)	no
GPC	cont. ratio of n=0 component (area %)	88.0 (Fig.3)	62.2 (Fig.4)	93.6 (Fig.5)
	Higher component of n	n=1	non ring closure component, n=1	n=1
	Mn **	348	387	345
	Mw ***	389	438	375

* melting point

** number average molecular weight (converted to polystyrene)

*** weight average molecular weight (converted to polystyrene)

2)-3 Examples 1 and 2 of the present application

Epoxy resin C and epoxy resin D are obtained by chasing faithfully Examples 1 and 2 of the present application. However, since purchase n-butyltriphenylphosphoniumbromide, which is used in the Examples as a reaction catalyst, is not in time, 2-ethyl-4-methylimidasole, which is conventionally used as a reaction catalyst of epoxy resin, is used.

That is, epoxy resin C corresponds to the epoxy resin of epoxy

equivalent 250 obtained in Example 1 of the present application, while, epoxy resin D corresponds to the epoxy resin of epoxy equivalent 800 obtained in Example 2 of the present application. Epoxy resin C obtained in supplementary test is a semi-solid resin of epoxy equivalent 254 and yield is 98%. Epoxy resin D is a resin of epoxy equivalent 792 and yield is 95%. Epoxy equivalent of epoxy resin C and epoxy resin D are slightly different from that of epoxy equivalent mentioned in Examples 1 and 2, however the difference is within the range of allowable experimental error.

DSC analysis and GPC analysis are carried out on epoxy resin C and epoxy resin D. In the case of epoxy resin C, since Tg does not appear at the temperature over 0℃, it is presumed that Tg is lower than 0℃, and containing ratio of n=0 component is 56.0%. In the case of epoxy resin D, Tg is 54℃, and containing ratio of n=0 component is 7.2%. Further, regarding higher component of n, in epoxy resin C, small amount of n=1 component originated from starting material can be observed at Retention Time 27.97 min, and n=2 component (27.13 min) and n=4 component (26.12 min) which are peculiar to indirect method can be observed. Also in epoxy resin D, n=2 (27.13 min), n=4 (26.12 min), n=6 (25.48 min) and n=8 (25.02 min) can be observed. And, weight average molecular weight are respectively 1,044 and 5,655. Results are shown in Table-2.

Table-2

Analytical items		supplementary test results of Examples 1 and 2	
		Epoxy resin C	Epoxy resin D
Yield (%)		98	95
Epoxy equivalent (g/eq)		254	792
DSC	M.P. *(℃) (endothermic peak temp.)	no	no
	Tg (℃) (curve initiation temp.)	no (semi solid) (Fig.6) *1	54 (Fig.7) *2
GPC	cont. ratio of n=0 component (area %)	56.0 (Fig.8)	7.2 (Fig.9)
	Higher component of n	n=2, 4 (Fig.8)	n=2, 4, 6, 8 (Fig.9)
	Mn **	499	2014
	Mw ***	1,044	5,655

* melting point

** number average molecular weight (converted to polystyrene)

*** weight average molecular weight (converted to polystyrene)

*1 Tg does not appear over 0℃, presumed Tg is lower than 0℃

*2 curve initiation temperature of DSC curve (on set point)

Conditions of DSC analysis and GPC analysis in this Experimental Report are as follows.

【DSC measuring condition】

Instrument: DCC6200: Product of Seiko Instrument Co., Ltd.

Quantity of specimen: approximately 10mg of epoxy resin

Cell: α alumina

Measuring temperature: 0-140℃, scanning speed 5℃/min.

Measuring atmosphere: Nitrogen gas, 50ml/min.

【GPC measuring condition】

Instrument: HLC-8120GPC product of Tosoh Co., Ltd.

Column: TSK-GEL product of Tosoh Co., Ltd.: GMHXL×2, G2000XL×1

Temperature of column: 35℃

Eluate: tetrahydrofurane (THF)

Flow rate: 1ml/min.

Detector: RI detector (refractive index detector)

Concentration of specimen: epoxy resin 0.1g/THF10ml

2.4 Measurement of softening point of YSLV-80XY

1) Arrangement of measurement

· Measuring method: JIS K-7234 measuring method of softening point of epoxy resin

· Approximately 3g of YSLV-80XY (L/N:47M003) is melted at 100℃, then immediately cooled down to room temperature.

· Resin is poured into a softening point measuring ring.

· Await crystallization at room temperature, after 3 days, softening point is measured.

2) Measuring apparatus and measuring results

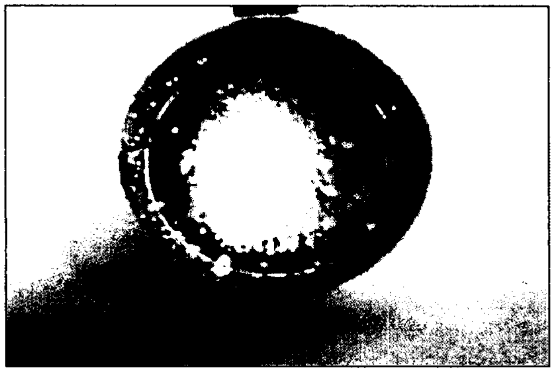
· Automatic softening point measuring apparatus (MEITECH CO., LTD., Japan)

· Softening point is measured at 2 points on the specimen after 3 days.

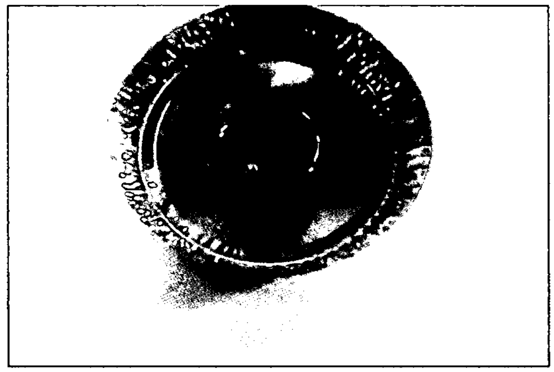
· Results are 82.1℃ and 82.4℃, and average value is 82.4℃.

3) reference pictureafter melted

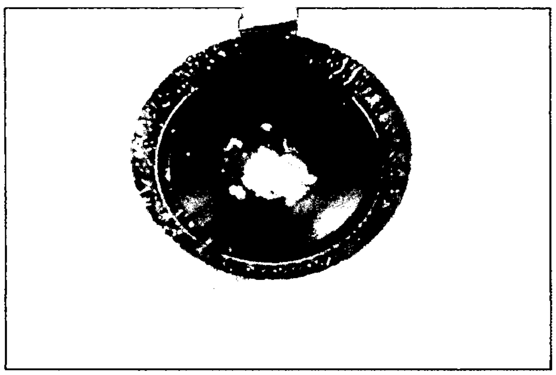
①YSLV-80XY (L/N:47M003) product



②after melted, just after poured in a softening point measuring ring

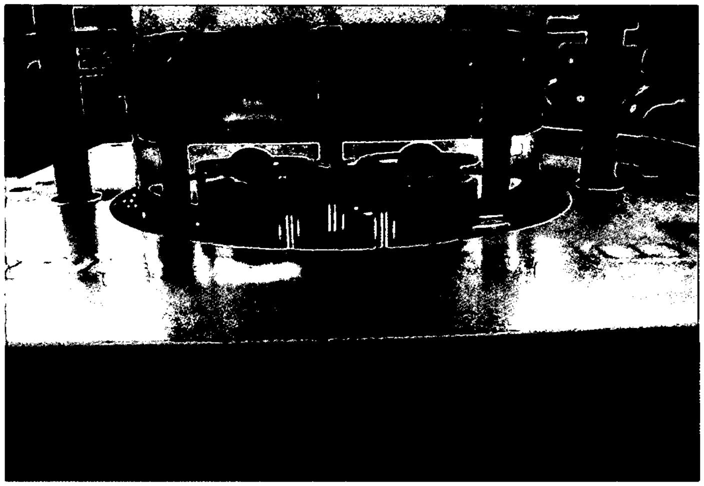


③ 3 days aging



④ Softening point measuring apparatus

⑤ Set up of specimen before measurement



3) Results

Following items can be proved by Table 1 and Table 2

· Epoxy resin A and YSLV-80XY is a crystalline epoxy resin whose containing ratio of n=0 component are respectively 88.0% and 93.8% and is proved that these resins are different from the non crystalline epoxy resin of formula 2 of the present application whose containing ratio of n=0 component is 60% or less.

· Epoxy resin B is a non crystalline epoxy resin whose containing ratio of n=0 component is 62.2%, and is proved that the containing ratio of n=0 component of this resin is different from that of the epoxy resin of formula 2 of the present application and higher component of n is n=1.

· It is proved that epoxy resins C and D is a non crystalline epoxy resin whose containing ratio of n=0 component is 60% or less. Tg of epoxy resin C can be presumed to be lower than 0℃, and is considered to be semi solid state because normal temperature exceeds Tg of the resin, while Tg of the epoxy resin D indicates 54℃.

· Higher component of n of epoxy resins C and D indicate even number as 2, 4, 6, 8 which are peculiar to indirect method.

· It is mentioned in Example 5 of the original specification that the average molecular weight of the present application indicates weight average molecular weight, and regarding the epoxy resins C and D, it is proved that weight average molecular weight is respectively 1,044 and 5,655.

· In the present Examination Report, supplementary test for Examples 3

and 5 are not carried out. However, regarding resins prepared by Examples 3 and 5, GPC charts are shown in Fig.4A and Fig.6A of the original specification and are indicated that these resins are polymer epoxy resins having molecular distribution. Therefore, from the measuring results of epoxy resins C and D, these resins are obviously non crystalline resin whose containing ratio of n=0 component is 60% or less and having Tg.

As mentioned above, the present application is characterized to use epoxy resin represented by formula 2 which satisfies following three conditions;
① To be non crystalline.
② Containing ratio of n=0 component is 60% or less
③ Epoxy equivalent is 250g/eq or more.

And, by using the epoxy resin that satisfies said conditions, a coating film that displays unexpected characteristics and properties can be obtained. In the cited references there is no disclosure and no teaching regarding these points.

We, inventors, declare that the epoxy resin of the present application is an epoxy resin which can not be taught and anticipated from the cited references.

Fig.1

モジュール:	DSC	温度プログラム:							コメント:	
データ名:	PAT. 12		Cel	Cel	Cel/min	min	s		オペレータ	Hanafusa
測定日付:	2007/03/05	1*	0	150	5	0	0.5			
サンプル名:	TMBEP									
サンプル質量:	10.800 mg									
リファレンス名:	α-アルミナ									
リファレンス質量:	21.930 mg									

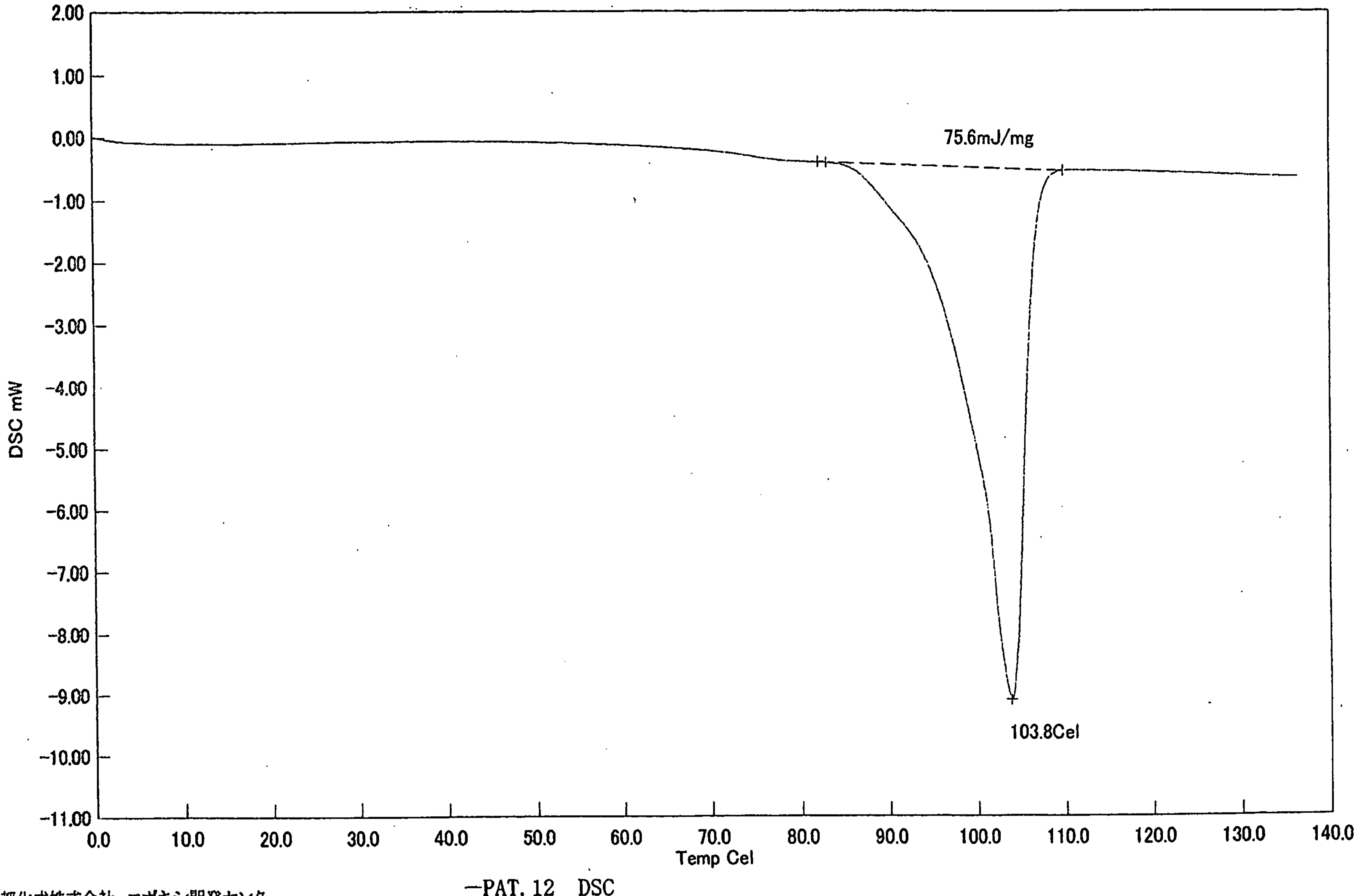


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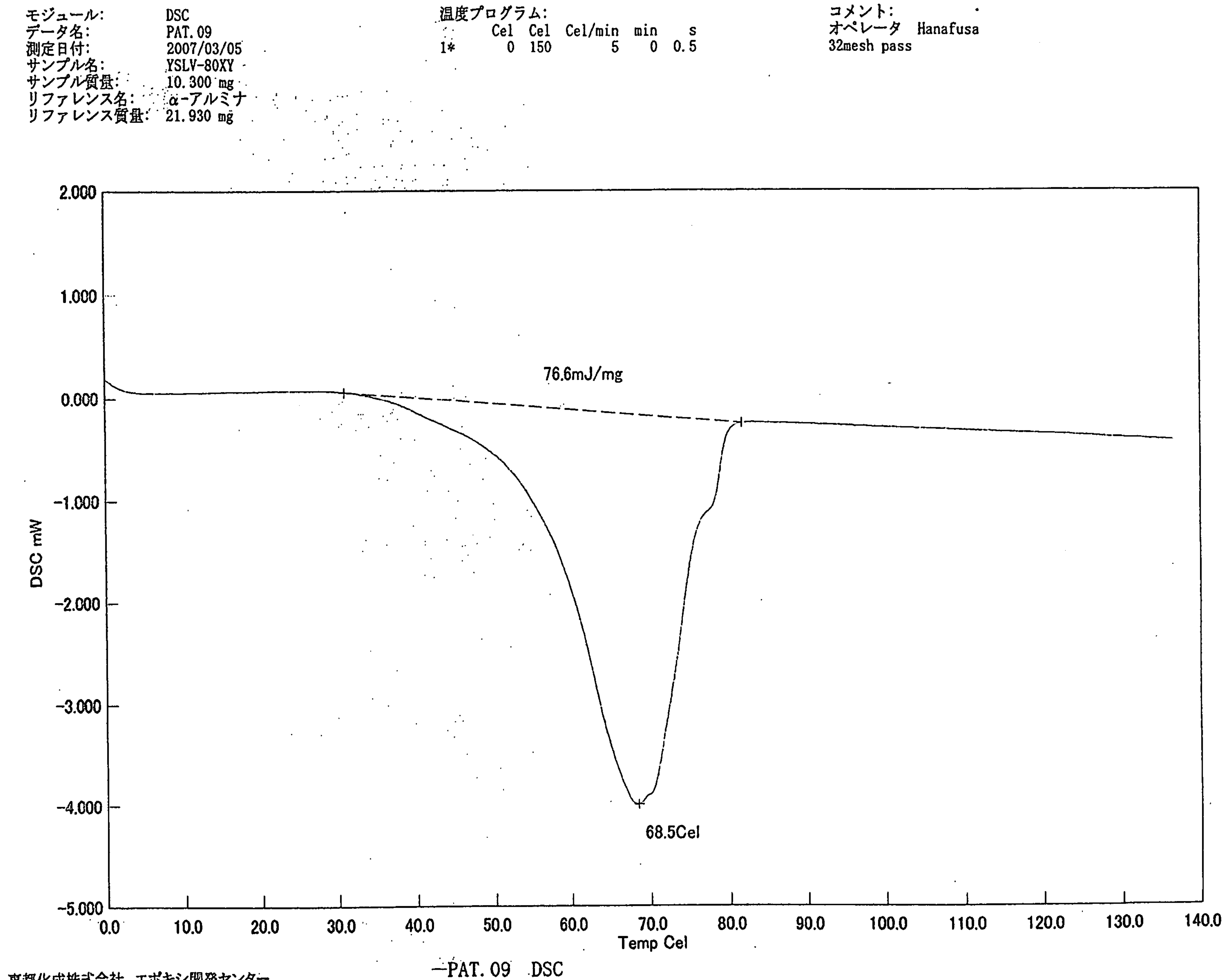
Fig.2


モジュール: DSC
データ名: PAT.09
測定日付: 2007/03/05
サンプル名: YSLV-80XY
サンプル質量: 10.300 mg
リファレンス名: α-アルミナ
リファレンス質量: 21.930 mg
温度プログラム:
Cel Cel Cel/min min s
1* 0 150 5 0 0.5
コメント:
オペレータ Hanafusa
32mesh pass
2.000
1.000
0.000
-1.000
-2.000
-3.000
-4.000
-5.000
DSC mW
76.6mJ/mg
68.5Cel
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
100.0
110.0
120.0
130.0
140.0
Temp Cel
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—PAT.09 DSC

Fig.3

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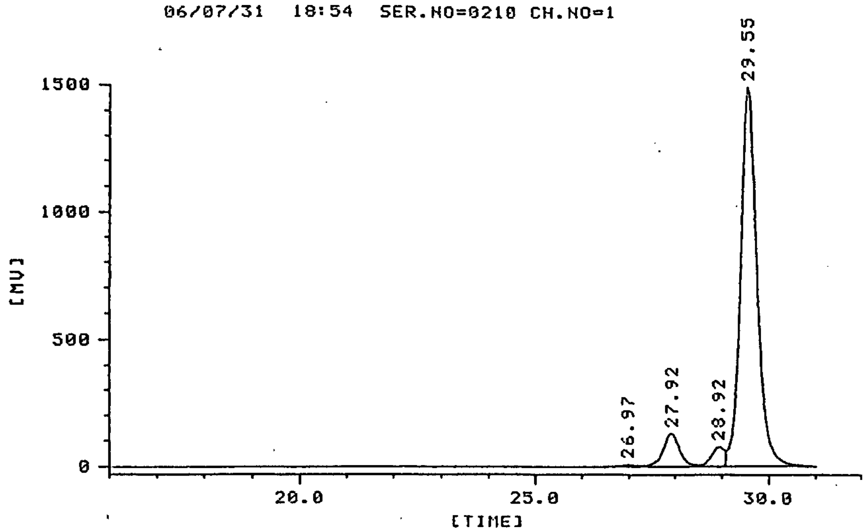

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VIAL NO. 3 NAME: USP A-2 ROSAI SERIAL NO. 0210

CH.NO 1 METHOD 2

PEAK NO. 1 BASE

	START	TOP	END	MN	MW	MZ	MV
T	26.43	26.97	27.27	1.64220×10^{3}	1.65650×10^{3}	1.67112×10^{3}	1.65650×10^{3}
V	-1.3	7.1	2.2	MW/MN	MZ/MW	AREA	AREA%
M	2307	1656	1375	1.01	1.01	1.90595×10^{2}	0.46

PEAK NO. 2 VALLEY

	START	TOP	END	MN	MW	MZ	MV
T	27.27	27.92	28.50	9.17703×10^{2}	9.31403×10^{2}	9.45379×10^{2}	9.31403×10^{2}
V	2.2	127.8	5.8	MW/MN	MZ/MW	AREA	AREA%
M	1375	918	639	1.01	1.02	3.25684×10^{3}	7.86

PEAK NO. 3 VALLEY

	START	TOP	END	MN	MW	MZ	MV
T	28.50	28.92	29.07	5.02732×10^{2}	5.05817×10^{2}	5.09078×10^{2}	5.05817×10^{2}
V	5.8	76.8	63.1	MW/MN	MZ/MW	AREA	AREA%
M	639	493	449	1.01	1.01	1.52082×10^{3}	3.67

PEAK NO. 4 VALLEY

	START	TOP	END	MN	MW	MZ	MV
T	29.07	29.55	31.00	3.24466×10^{2}	3.29353×10^{2}	3.33839×10^{2}	3.29353×10^{2}
V	63.1	1495.4	1.5	MW/MN	MZ/MW	AREA	AREA%
M	449	333	135	1.02	1.01	3.64737×10^{4}	88.01

TOTAL

	START	TOP	END	MN	MW	MZ	MV
T	26.43	29.55	31.00	3.47955×10^{2}	3.89246×10^{2}	4.83369×10^{2}	3.89246×10^{2}
V	-1.3	1495.4	1.5	MW/MN	MZ/MW	AREA	AREA%
M	2307	333	135	1.12	1.24	4.14420×10^{4}	100.00

Fig.4

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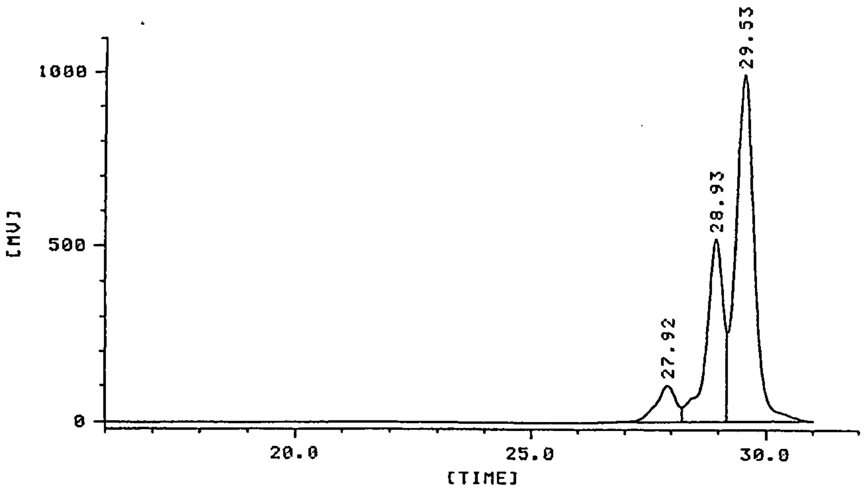

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VIAL NO. 1 NAME: USP A-2 ROEKI SERIAL NO. 0208

CH.NO 1 METHOD 2

PEAK NO. 1 BASE

	START	TOP	END	MN	MW	MZ	MV
T	26.42	27.92	28.22	9.70868×10^{2}	9.98985×10^{2}	1.03498×10^{3}	9.98985×10^{2}
V	-0.5	104.9	43.6	MW/MN	MZ/MW	AREA	AREA%
M	2331	918	762	1.03	1.04	3.32614×10^{3}	7.60

PEAK NO. 2 VALLEY

	START	TOP	END	MN	MW	MZ	MV
T	28.22	28.93	29.17	5.04641×10^{2}	5.12857×10^{2}	5.22357×10^{2}	5.12857×10^{2}
V	43.6	526.8	261.6	MW/MN	MZ/MW	AREA	AREA%
M	762	488	422	1.02	1.02	1.32106×10^{4}	30.20

PEAK NO. 3 VALLEY

	START	TOP	END	MN	MW	MZ	MV
T	29.17	29.53	31.00	3.26092×10^{2}	3.32828×10^{2}	3.38550×10^{2}	3.32828×10^{2}
V	261.6	1002.3	5.1	MW/MN	MZ/MW	AREA	AREA%
M	422	336	135	1.02	1.02	2.72059×10^{4}	62.20

TOTAL

	START	TOP	END	MN	MW	MZ	MV
T	26.42	29.53	31.00	3.86985×10^{2}	4.37852×10^{2}	5.24392×10^{2}	4.37852×10^{2}
V	-0.5	1002.3	5.1	MW/MN	MZ/MW	AREA	AREA%
M	2331	336	135	1.13	1.20	4.37427×10^{4}	100.00

Fig.5

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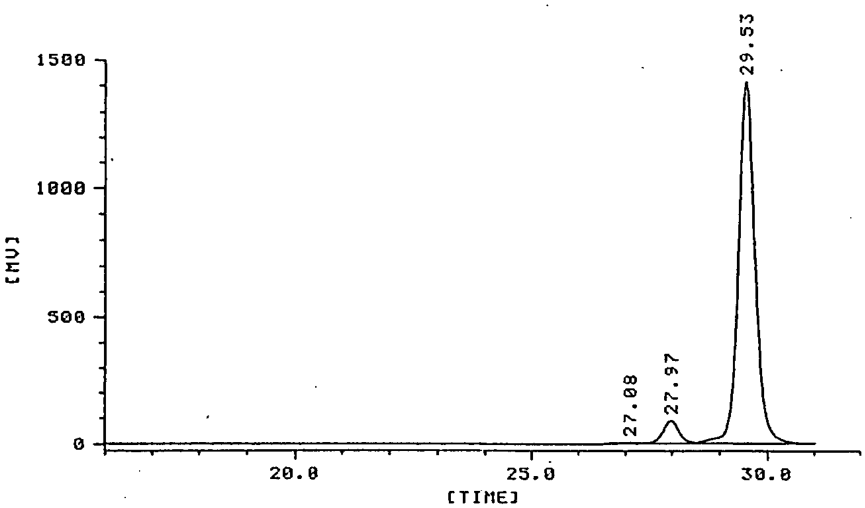

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VIAL NO. 1 NAME: YSLV-80XY<47M003 SERIAL NO. 0001

CH.NO 1 METHOD 2

PEAK NO. 1 BASE

	START	TOP	END	MN	MW	MZ	MV
T	26.62	27.08	27.33	1.53811×10^{3}	1.55020×10^{3}	1.56267×10^{3}	1.55020×10^{3}
V	2.3	7.3	5.0	MW/MN	MZ/MW	AREA	AREA%
M	2059	1541	1319	1.01	1.01	1.11005×10^{2}	0.30

PEAK NO. 2 VALLEY

	START	TOP	END	MN	MW	MZ	MV
T	27.33	27.97	28.48	8.89964×10^{2}	9.01985×10^{2}	9.14329×10^{2}	9.01985×10^{2}
V	5.0	94.2	8.3	MW/MN	MZ/MW	AREA	AREA%
M	1319	890	645	1.01	1.01	2.27660×10^{3}	6.15

PEAK NO. 3 VALLEY

	START	TOP	END	MN	MW	MZ	MV
T	28.48	29.53	31.00	3.30400×10^{2}	3.36121×10^{2}	3.42001×10^{2}	3.36121×10^{2}
V	8.3	1424.3	4.1	MW/MN	MZ/MW	AREA	AREA%
M	645	336	135	1.02	1.02	3.46455×10^{4}	93.55

TOTAL

	START	TOP	END	MN	MW	MZ	MV
T	26.62	29.53	31.00	3.44528×10^{2}	3.74547×10^{2}	4.41874×10^{2}	3.74547×10^{2}
V	2.3	1424.3	4.1	MW/MN	MZ/MW	AREA	AREA%
M	2059	336	135	1.09	1.18	3.70332×10^{4}	100.00

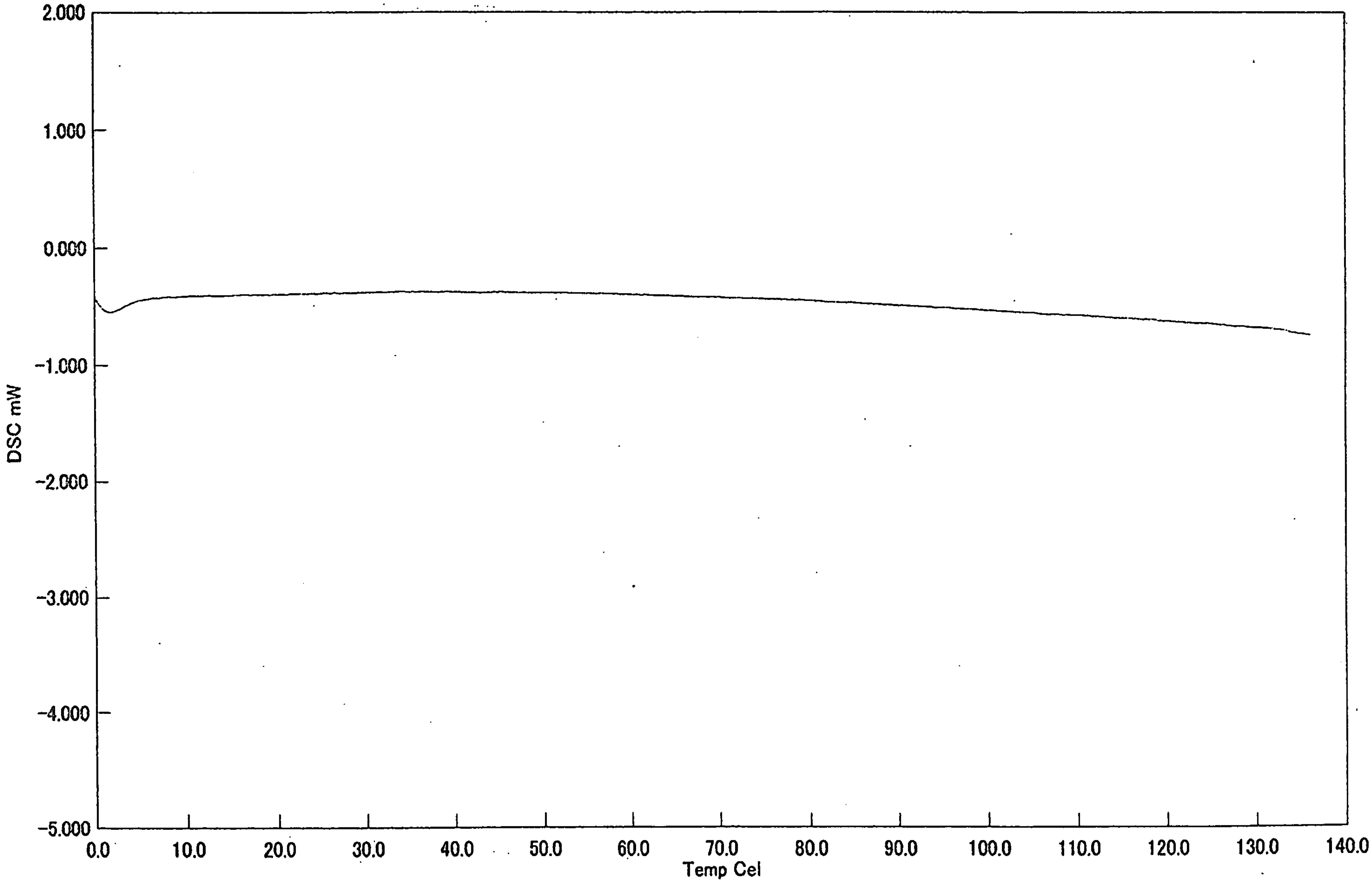
Fig.6

モジュール: DSC
データ名: PAT.10
測定日付: 2007/03/05
サンプル名: 実施例1
サンプル質量: 11.200 mg
リファレンス名: α-アルミナ
リファレンス質量: 21.930 mg

温度プログラム:

	Cel	Cel	Cel/min	min	s
1*	0	150	5	0	0.5

コメント:
オペレータ Hanafusa



—PAT.10 DSC

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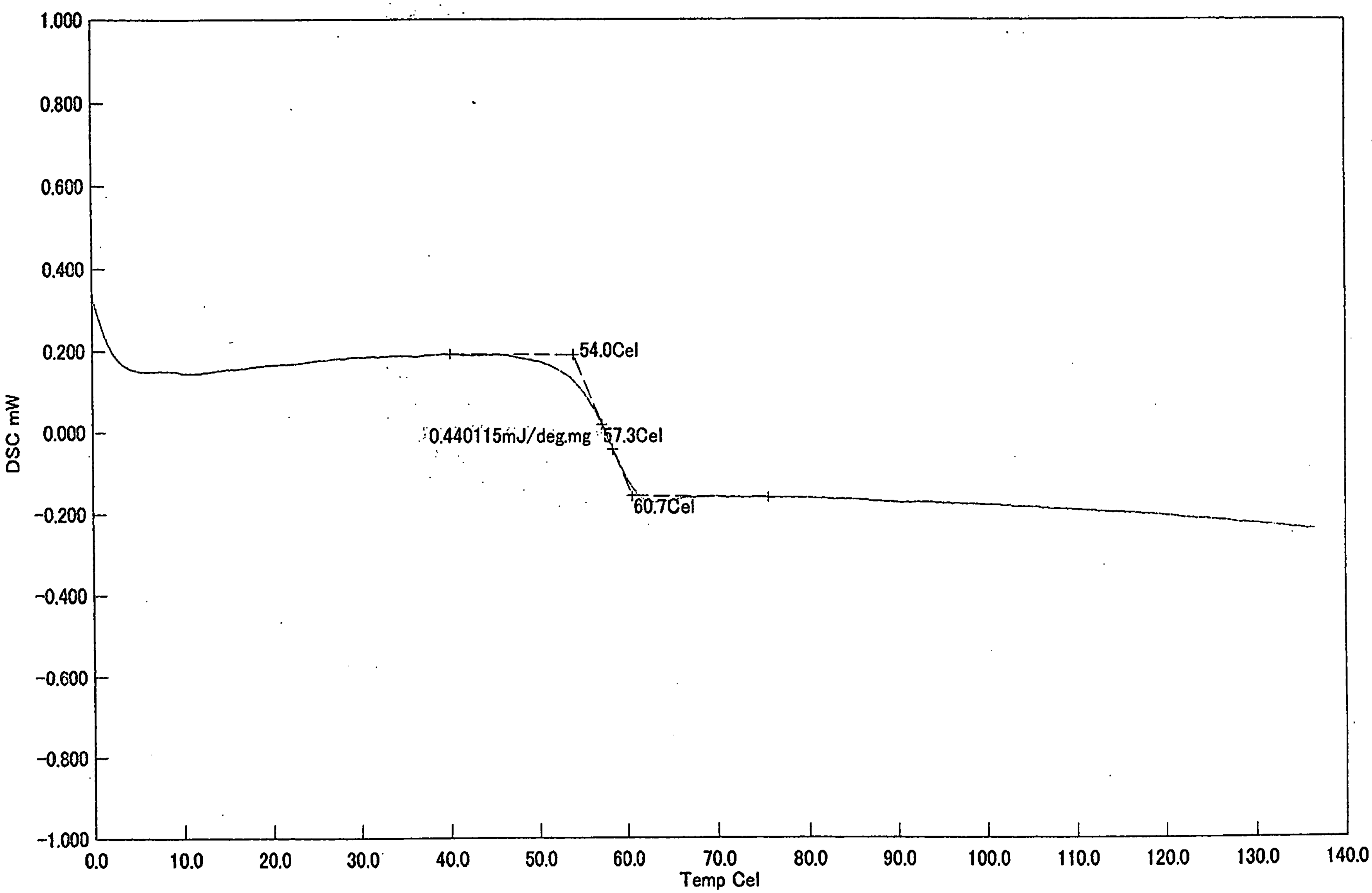
Fig.7

モジュール: DSC
データ名: PAT.11
測定日付: 2007/03/05
サンプル名: 実施例2
サンプル質量: 10.000 mg
リファレンス名: α-アルミナ
リファレンス質量: 21.930 mg

温度プログラム:

	Cel	Cel	Cel/min	min	s
1*	0	150	5	0	0.5

コメント:
オペレータ Hanafusa
フレーク



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—PAT.11 DSC

Fig.8

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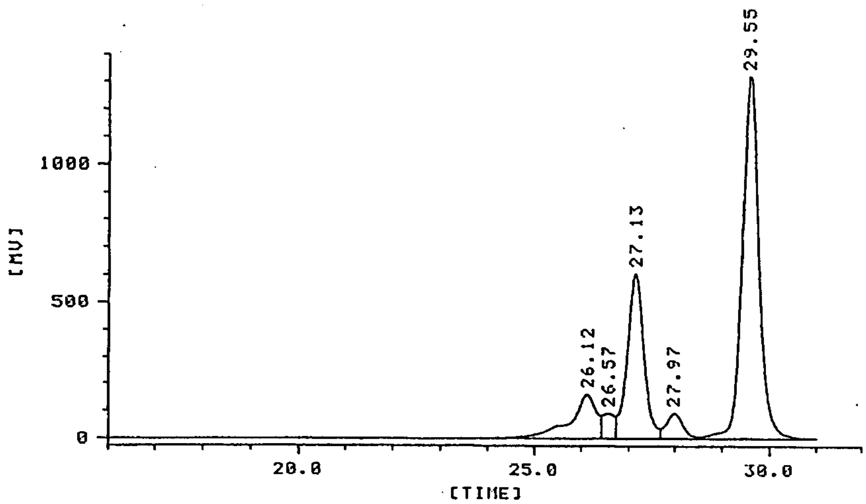

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VIAL NO. 3 NAME: EX1 SERIAL NO. 0003

CH.NO 1 METHOD 2

PEAK NO. 1 BASE

	START	TOP	END	MN	MW	MZ	MV
T	23.93	26.12	26.42	3.17087×10^{3}	3.39167×10^{3}	3.71047×10^{3}	3.39167×10^{3}
V	1.8	160.7	85.8	MW/MN	MZ/MW	AREA	AREA%
M	11160	2809	2331	1.07	1.09	6.39247×10^{3}	10.99

PEAK NO. 2 VALLEY

	START	TOP	END	MN	MW	MZ	MV
T	26.42	26.57	26.72	2.12220×10^{3}	2.12885×10^{3}	2.13549×10^{3}	2.12885×10^{3}
V	85.8	92.6	83.4	MW/MN	MZ/MW	AREA	AREA%
M	2331	2124	1935	1.00	1.00	1.64359×10^{3}	2.83

PEAK NO. 3 VALLEY

	START	TOP	END	MN	MW	MZ	MV
T	26.72	27.13	27.68	1.47643×10^{3}	1.49534×10^{3}	1.51398×10^{3}	1.49534×10^{3}
V	83.4	610.4	39.3	MW/MN	MZ/MW	AREA	AREA%
M	1935	1494	1061	1.01	1.01	1.52021×10^{4}	26.15

PEAK NO. 4 VALLEY

	START	TOP	END	MN	MW	MZ	MV
T	27.68	27.97	28.52	8.68822×10^{2}	8.78849×10^{2}	8.88522×10^{2}	8.78849×10^{2}
V	39.3	93.3	8.3	MW/MN	MZ/MW	AREA	AREA%
M	1061	890	632	1.01	1.01	2.32777×10^{3}	4.00

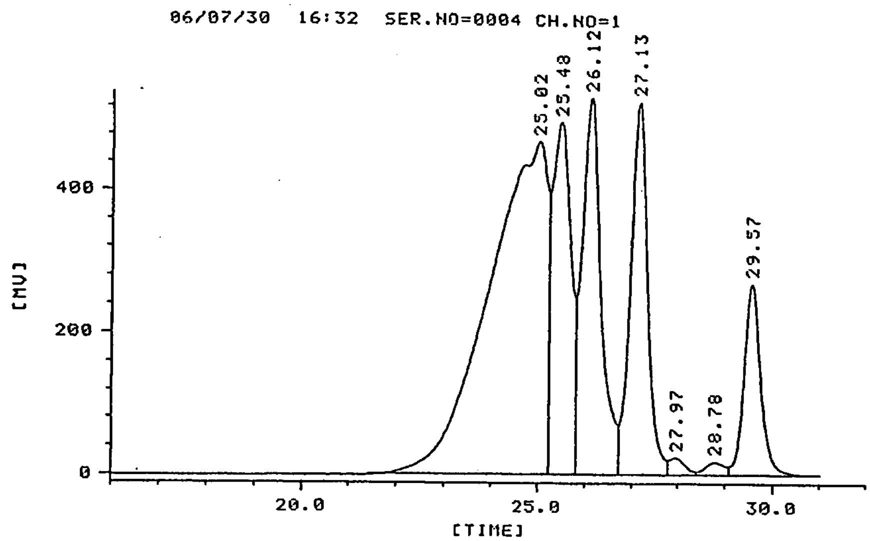
PEAK NO. 5 VALLEY

	START	TOP	END	MN	MW	MZ	MV
T	28.52	29.55	31.00	3.23116×10^{2}	3.28857×10^{2}	3.34869×10^{2}	3.28857×10^{2}
V	8.3	1327.8	2.5	MW/MN	MZ/MW	AREA	AREA%
M	632	333	135	1.02	1.02	3.25743×10^{4}	56.03

TOTAL

	START	TOP	END	MN	MW	MZ	MV
T	23.93	29.55	31.00	4.98719×10^{2}	1.04352×10^{3}	2.10548×10^{3}	1.04352×10^{3}
V	1.8	1327.8	2.5	MW/MN	MZ/MW	AREA	AREA%
M	11160	333	135	2.09	2.02	5.81403×10^{4}	100.00

Fig.9



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VIAL NO. 4 NAME: EX2 SERIAL NO. 0004

CH.NO 1 METHOD 2

PEAK NO. 1 BASE

	START	TOP	END	MN	MW	MZ	MV
T	21.40	25.02	25.23	7.92512×10^{3}	9.65034×10^{3}	1.31670×10^{4}	9.65034×10^{3}
V	0.1	469.9	399.0	MW/MN	MZ/MW	AREA	AREA%
M	85256	5566	4865	1.22	1.36	4.06165×10^{4}	44.47

PEAK NO. 2 VALLEY

	START	TOP	END	MN	MW	MZ	MV
T	25.23	25.48	25.82	4.10342×10^{3}	4.14433×10^{3}	4.18470×10^{3}	4.14433×10^{3}
V	399.0	498.1	250.1	MW/MN	MZ/MW	AREA	AREA%
M	4865	4165	3385	1.01	1.01	1.42565×10^{4}	15.61

PEAK NO. 3 VALLEY

	START	TOP	END	MN	MW	MZ	MV
T	25.82	26.12	26.72	2.72168×10^{3}	2.76603×10^{3}	2.80758×10^{3}	2.76603×10^{3}
V	250.1	533.3	71.3	MW/MN	MZ/MW	AREA	AREA%
M	3385	2809	1935	1.02	1.02	1.52944×10^{4}	16.75

PEAK NO. 4 VALLEY

	START	TOP	END	MN	MW	MZ	MV
T	26.72	27.13	27.77	1.47638×10^{3}	1.49664×10^{3}	1.51628×10^{3}	1.49664×10^{3}
V	71.3	527.4	21.5	MW/MN	MZ/MW	AREA	AREA%
M	1935	1494	1008	1.01	1.01	1.34502×10^{4}	14.73

PEAK NO. 5 VALLEY

	START	TOP	END	MN	MW	MZ	MV
T	27.77	27.97	28.38	8.66748×10^{2}	8.74723×10^{2}	8.82387×10^{2}	8.74723×10^{2}
V	21.5	25.0	5.5	MW/MN	MZ/MW	AREA	AREA%
M	1008	890	687	1.01	1.01	6.12273×10^{2}	0.67

PEAK NO. 6 VALLEY

	START	TOP	END	MN	MW	MZ	MV
T	28.38	28.78	29.08	5.32727×10^{2}	5.39165×10^{2}	5.45813×10^{2}	5.39165×10^{2}
V	5.5	19.1	13.4	MW/MN	MZ/MW	AREA	AREA%
M	687	536	445	1.01	1.01	5.49395×10^{2}	0.60

PEAK NO. 7 VALLEY

	START	TOP	END	MN	MW	MZ	MV
T	29.08	29.57	31.00	3.23018×10^{2}	3.27813×10^{2}	3.32251×10^{2}	3.27813×10^{2}
V	13.4	269.8	1.0	MW/MN	MZ/MW	AREA	AREA%
M	445	329	135	1.01	1.01	6.54995×10^{3}	7.17

TOTAL

	START	TOP	END	MN	MW	MZ	MV
T	21.40	26.12	31.00	2.01413×10^{3}	5.65493×10^{3}	1.07634×10^{4}	5.65493×10^{3}
V	0.1	533.3	1.0	MW/MN	MZ/MW	AREA	AREA%
M	85256	2809	135	2.81	1.90	9.13293×10^{4}	100.00

Further Declarant Shuya Shinohara, Masayoshi Hanabusa, Nobuhisa Saito and Hiroshi Nakanishi sayeth:

We declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true and further, that any false statements so made are punishable for fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date 27th day of April, 2007

Signature Shuya Shinohara
Shuya Shinohara

Signature Masayoshi Hanabusa
Masayoshi Hanabusa

Signature Nobuhisa Saito
Nobuhisa Saito

Signature Hiroshi Nakanishi
Hiroshi Nakanishi